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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/796,342

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Akiko Hirao

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2005

22852

7590

02/18/2009

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EXAMINER

CHU, KIM KWOK

ART UNIT

PAPER NUMBER

2627

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/796,342	<b>Applicant(s)</b> HIRAO ET AL.	
	<b>Examiner</b> Kim-Kwok CHU	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed on 12/1/2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 6-123 is/are pending in the application.
- 4a) Of the above claim(s) 10-12 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9,13,14 and 17-19 is/are allowed.
- 6) ☒ Claim(s) 1,8,15 and 16 is/are rejected.
- 7) ☒ Claim(s) 3,6,7 and 20-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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***Continued Examination after Final Rejection***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 1, 2008 has been entered.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless -  
(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.*

3. Claims 1, 8, 15 and 16 are rejected under 35 U.S.C. § 102(e) as being anticipated by Tsukagoshi (U.S. Patent 7,313,072).

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4. Tsukagoshi teaches an optical recording medium having all of the elements and means as recited in claims 1 and 15. For example, Tsukagoshi teaches the following:

Regarding to Claim 1, the optical information recording medium comprising: a transparent substrate 101c (Fig. 1; column 5, lines 16-18) having a first surface and a second surface (Fig. 1; substrate 101c has an upper and lower surfaces); a recording layer 101b that contains regions of differing optical density (varying optical property) and is arranged on the first surface of the transparent substrate (Fig. 1; column 4, lines 52-59), wherein a hologram (column 4, lines 29 and 30) is recorded in the recording layer 101b when a signal light and a reference light are incident from an incident side opposite to the transparent substrate (Figs. 1 and 5; column 7, lines 37-45), a region in the recording layer 101b, in which the hologram is recorded, contains portions (part of the recording layer) of differing optical density and is conical (Fig. 1; conical light beam irradiates on the recording layer), and the optical density corresponding to the signal light in the region of the recording layer in which the hologram is recorded corresponding to the signal light decreases from the incident side (upper side) toward the transparent substrate 101c (optical property of the recording layer is affected by the conical shape light beam);

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and a reflection layer 101d arranged on the second surface of the transparent substrate (Fig. 1).

Regarding to Claim 15, the hologram is recorded in the recording layer by a polarized collinear holographic method (Fig. 5).

5. Claims 8 and 16 have limitations similar to those treated in the above rejection, and are met by the reference as discussed above. Claim 8 however recites the following limitations which is also taught in the prior art of Tsukagoshi:

Regarding to Claim 8, an optical density corresponding to the signal light in the region of a part of the recording layer 101b in which the hologram is recorded corresponding to the signal decreases from the incident side toward the transparent substrate, and an optical density of a remaining part of the recording layer is uniform (Fig. 1; no conical light beam affects the optical property of the recording layer).

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***Allowable Subject Matter***

6. Claims 3, 6, 7, 15, 20, 21, 22 and 23 are objected to as being dependent upon a rejected base Claim 1, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 8, 9, 13, 14 and 16-19 are allowable over prior art.

8. The following is an Examiner's statement of reasons for the indication of allowable subject matter:

As in claim 3, the prior art of record fails to teach or fairly suggest the recording layer includes a high optical density layer and a low optical density layer corresponding to the signal light, and the high optical density layer is arranged on the incident side relative to the low optical density layer.

As in claim 6, the prior art of record fails to teach or fairly suggest a groove that is arranged on the second surface of the transparent substrate to form a track, wherein at a same depth position of the recording layer, the optical density of an area of the recording layer corresponding to the groove is lower than the optical density of other area.

As in claim 7, the prior art of record fails to teach or fairly suggest a groove that is arranged on the second surface of the transparent substrate to form a track, wherein the

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recording layer includes areas having different optical densities at a same depth position, and an area having a lower optical density is arranged at a nearer position to the groove than an area having a higher optical density.

As in claim 9, the prior art of record fails to teach or fairly suggest that the recording layer includes a high optical density layer and a low optical density layer corresponding to the signal light, the high optical density layer is arranged on the incident side relative to the low optical density layer, and the optical density corresponding to the signal light in the region of the recording layer in which the hologram is recorded decreases from the incident side toward the transparent substrate.

As in claims 13 and 20, the prior art of record fails to teach or fairly suggest that the optical density  $S(z)$  at a depth  $z$  in the recording layer is within a range expressed as

$$0.5 \times \frac{S_0}{r_0^2} \left( r_0 - \frac{A/n_1}{\sqrt{1 - (A/n_1)^2}} z \right)^2 \leq S(z) \leq 2.0 \times \frac{S_0}{r_0^2} \left( r_0 - \frac{A/n_1}{\sqrt{1 - (A/n_1)^2}} z \right)^2$$

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where  $S_0$  is the optical density on a surface of the incident side of the recording layer at  $z=0$ ,  $n_1$  is a refractive index of the recording layer,  $A$  is a numerical aperture of the lens,  $r_0$  is a radius of a spot of the signal light on the surface of the incident side, and  $z$  is a distance from the surface of the incident side into the recording layer.

As in claims 14 and 21, the prior art of record fails to teach or fairly suggest that the optical density  $S(z)$  at a depth  $z$  in the recording layer is within a range expressed as

$$0.5 \times \frac{S_0}{r_0^2} \left( r_0 - \frac{A/n_1}{\sqrt{1 - (A/n_1)^2}} z \right)^2 \leq S(z) \leq 2.0 \times \frac{S_0}{r_0^2} \left( r_0 - \frac{A/n_1}{\sqrt{1 - (A/n_1)^2}} z \right)^2$$

where  $S_0$  is the optical density on a surface of the incident side of the recording layer at  $z=0$ ,  $n_1$  is a refractive index of the recording layer,  $A$  is a numerical aperture of the lens,  $r_0$  is a radius of a spot of the signal light on the surface of the incident side, and  $z$  is a distance from the surface of the incident side into the recording layer.

As in claim 22, the prior art of record fails to teach or fairly suggest that the recording layer contains an initiator that absorbs light and initiates a polymerization reaction, and the initiator is bis (2,6-difluoro-3-pyrrole phenyl) titanocene.

As in claim 23, the prior art of record fails to teach or fairly suggest that the recording layer contains an initiator that absorbs light and initiates a polymerization reaction, and a content of the initiator is 0.1 to 5.0 wt%.

The features indicated above, in combination with the other



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elements of the claims, are not anticipated by, nor made obvious over, the prior art of record.

9. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kim CHU whose telephone number is (571) 272-7585 between 9:30 am to 6:00 pm, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen, can be reached on (571) 272-7579.

The fax number for the organization where this application or proceeding is assigned is (571) 273-8300

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9191 (toll free).

/Kim-Kwok CHU/

Examiner AU2627

February 3, 2009

(571) 272-7585

/HOA T NGUYEN/

Supervisory Patent Examiner, Art Unit 2627